

IN THE CLAIMS

The following is a complete listing of the claims, which replaces all previous versions and listings of the claims.

1. (currently amended): A portable induction heating system, comprising in a portable unit:

a power source electrically coupleable to a fluid-cooled induction heating cable and operable to produce a varying magnetic field;

a programmable power source controller coupled to the power source for regulating the power conversion; and

a cooling unit fluidically coupleable to the fluid-cooled induction heating cable for ~~recycling~~ providing a cooling fluid through the fluid-cooled induction heating cable and around a workpiece to cool the fluid-cooled induction heating cable, wherein the cooling unit is configured to cooperate with at least the fluid-cooled induction heating cable to provide a single continuous cooling path operable to dissipate heat from the fluid-cooled induction heating cable and from an electrical lead extending from the portable induction heating system to the fluid-cooled induction heating cable.

2. (previously presented): The system as recited in claim 1, comprising a flexible fluid-cooled induction heating cable.

3. (previously presented): The system as recited in claim 1, wherein the fluid-cooled induction heating cable is coupled via connector assemblies to the power source and cooling unit.

4. (previously presented): The system as recited in claim 3, wherein the power source controller is operable to control power from the power source to produce a desired temperature profile in the workpiece.

5. (original): The system as recited in claim 2, wherein the induction heating system is operable to preheat a workpiece before welding and to relieve stress from the workpiece after welding.

6. (original): The system as recited in claim 1, comprising a wheeled cart, wherein the power source and cooling unit are disposed on the wheeled cart.

7. (canceled)

8.. (original): The system as recited in claim 1, comprising a temperature feedback device operable to provide an electrical signal representative of workpiece temperature.

9-46. (canceled)

47. (currently amended): A portable heating system, comprising in a portable unit:

a power source operable to apply output power to an electrical pathway to inductively heat a workpiece, wherein the electrical pathway includes an induction heating cable adjacent the workpiece, a supply path from the portable heating system to

the induction heating cable, and a return path from the induction heating cable to the portable heating system;

a power source controller operable to control the heating of a workpiece in response to programming instructions provided by a user to produce a desired temperature profile in the workpiece; **and**

a cart operable to transport the power source and power source controller to the workpiece;

a cooling unit operable to provide a flow of cooling fluid, the cooling unit being disposed on the cart; and

the induction heating cable, wherein the induction heating cable is a fluid-cooled induction heating cable that cooperates with the cooling unit to form at least a portion of a single cooling pathway that is configured to generally extend along the supply path and the return path of the electrical pathway to remove heat therefrom.

48-50. (canceled)

51. (original): The system as recited in claim 47, comprising a temperature feedback device operable to produce a signal representative of workpiece temperature to the power source controller.

52. (original): The system as recited in claim 47, wherein the power source controller uses PID control.

53. (original): The system as recited in claim 47, wherein the power source controller uses PI control.

54. (original): The system as recited in claim 47, wherein the system is operable to raise the temperature of a workpiece to a first temperature and lower the temperature of the workpiece from the first temperature to a second temperature at a desired rate.

55. (original): The system as recited in claim 47, comprising an insulation blanket having a visible line to enable the insulation blanket to be aligned with a weld joint.

56. (canceled)

57. (currently amended): A portable induction heating system, comprising in a portable unit:

a power source electrically coupleable to a portable fluid-cooled induction heating cable and operable to provide output power to produce a varying magnetic field;

a programmable controller operable to control induction heating; ~~and~~

a cooling unit fluidically connected to the fluid-cooled induction heating cable to cool the fluid-cooled induction heating cable via a cooling fluid, wherein the cooling unit dissipates heat in the cooling fluid ~~and wherein the cooling unit reycles the cooling fluid to cool the induction heating cable; and~~

a flow switch coupled to the programmable controller, wherein the flow switch is configured to detect the cooling fluid returning from the fluid-cooled induction heating cable and to effect a change in the output power when the amount of the cooling fluid returning from the fluid-cooled induction heating cable is below a threshold amount.

58. (previously presented): The system as recited in claim 57, wherein the programmable controller comprises a plurality of visual indicators.

59. (previously presented): The system as recited in claim 57, wherein the fluid-cooled induction heating cable is connected via connector assemblies to the power source and cooling unit.

60. (previously presented): The system as recited in claim 57, wherein the programmable controller is operable to control induction heating to produce a desired temperature profile in a workpiece.

61. (previously presented): The system as recited in claim 57, wherein the induction heating system is operable to preheat a workpiece before welding and to relieve stress from the workpiece after welding.

62. (previously presented): The system as recited in claim 57, comprising a wheeled cart, wherein the power source and cooling unit are disposed on the wheeled cart.

63. (canceled)

64. (previously presented): The system as recited in claim 57, comprising a temperature feedback device operable to provide an electrical signal representative of a workpiece temperature.

65. (previously presented): The system, as recited in claim 64, wherein the electrical signal representative of the workpiece temperature from the temperature feedback device is sent to the programmable controller.

66. (previously presented): The system as recited in claim 57, wherein the programmable controller uses proportional-integral-derivative (PID) control.

67. (previously presented): The system as recited in claim 57, wherein the programmable controller uses proportional-integral (PI) control.

68. (previously presented): A portable induction heating system, comprising in a portable unit:

a power source operable to provide output power to inductively heat a workpiece;
a temperature controller operable to control the induction heating of the workpiece in response to programming instructions provided by a user to produce a desired temperature profile in the workpiece; and

a cart operable to transport the power source and temperature controller to the workpiece.

69. (previously presented): The system as recited in claim 68, wherein the temperature profile is configured for post-weld stress relief of the workpiece.

70. (previously presented): The system as recited in claim 68, comprising a fluid-cooled induction heating cable.

71. (previously presented): The system as recited in claim 68, comprising a cooling unit operable to provide a flow of cooling fluid, the cooling unit being disposed on the cart.

72. (previously presented): The system as recited in claim, 68 comprising a temperature feedback device operable to produce a signal representative of workpiece temperature to the temperature controller.

73. (previously presented): The system as recited in claim 68, wherein the temperature controller uses proportional-integral-derivative (PID) control.

74. (previously presented): The system as recited in claim 68, wherein the temperature controller uses proportional-integral (PI) control.

75. (previously presented): The system as recited in claim 68, wherein the system is operable to raise the temperature of a workpiece to a first temperature and lower the temperature of the workpiece from the first temperature to a second temperature at a desired rate.

76. (previously presented): The system as recited in claim 68, comprising an insulation blanket having a visible line to enable the insulation blanket to be aligned with a weld joint.

77. (previously presented): The system as recited in claim 70, wherein the fluid-cooled induction heating cable is connected via connector assemblies to the power source.

78. (previously presented): The system as recited in claim 71, wherein a fluid-cooled induction heating cable is connected via connector assemblies to the cooling unit.

79. (previously presented): A portable induction heating system, comprising in a portable unit:

a power source electrically coupleable to a fluid-cooled induction heating cable and operable to produce a varying magnetic field in cooperation with the fluid-cooled induction heating cable;

a programmable power source controller coupled to the portable power source for regulating the power conversion; and

a cooling unit fluidically connected to the fluid-cooled induction heating cable to cool the fluid-cooled induction heating cable, wherein the cooling unit recycles cooling fluid received from the fluid-cooled induction heating cable to the fluid-cooled induction heating cable; and

a flow switch coupled to the programmable power source controller, wherein the flow switch is configured to detect the cooling fluid received from the fluid-cooled induction heating cable and to effect a change in the output power when the amount of the cooling fluid received from the fluid-cooled induction heating cable is below a threshold amount.

80. (previously presented): The system as recited in claim 79, comprising a flexible fluid-cooled induction heating cable.

81. (previously presented): The system as recited in claim 79, wherein the fluid-cooled induction heating cable is coupled via connector assemblies to the power source and cooling unit.

82. (previously presented): The system as recited in claim 79, wherein the programmable power source controller is operable to control power from the power source to produce a desired temperature profile in the workpiece.

83. (previously presented): The system as recited in claim 79, wherein the induction heating system is operable to preheat a workpiece before welding and relieve stress from the workpiece after welding.

84. (previously presented): The system as recited in claim 79, comprising a wheeled cart, wherein the power source and cooling unit are disposed on the wheeled cart.

85. (previously presented): The system as recited in claim 79, wherein a power source controller is disposed on the wheeled cart.

86. (previously presented): The system as recited in claim 79, comprising a temperature feedback device operable to provide an electrical signal representative of workpiece temperature.

87. (previously presented): A portable heating system, comprising in a portable unit:

a power source operable to apply output power to inductively heat a workpiece via a fluid-cooled induction heating cable;

a controller operable to control the heating of the workpiece in response to programming instructions for producing a desired temperature profile in the workpiece;

a cooling unit configured for fluid communication with the fluid-cooled induction heating cable, the cooling unit and fluid-cooled induction heating cable cooperating to produce a closed-loop for recycling cooling fluid; and

a cart operable to transport the power source, cooling unit, and controller to the workpiece.

88-90. (canceled)

91. (previously presented): The system as recited in claim 87, comprising a temperature feedback device operable to produce a signal representative of workpiece temperature to the controller.

92. (previously presented): The system as recited in claim 87, wherein the controller uses proportional-integral-derivative (PID) control.

93. (previously presented): The system as recited in claim 87, wherein the controller uses proportional-integral (PI) control.

94. (previously presented): The system as recited in claim 87, wherein the controller is operable to raise the temperature of a workpiece to a first temperature and

lower the temperature of the workpiece from the first temperature to a second temperature at a desired rate.

95. (new) The system as recited in claim 68, further comprising a flow switch coupled to the temperature controller, wherein the flow switch is configured to detect cooling fluid received from a fluid-cooled induction heating cable and to effect a change in the output power when the amount of the cooling fluid received from the fluid-cooled induction heating cable is below a threshold amount.

96. (new) The system as recited in claim 87, further comprising a flow switch coupled to the controller, wherein the flow switch is configured to detect the cooling fluid received from the fluid-cooled induction heating cable and to effect a change in the output power when the amount of the cooling fluid received from the fluid-cooled induction heating cable is below a threshold amount.